CLAIMS:

1. A drug delivery system comprising nanoparticles or microparticles of a poorly soluble drug dispersed in a polymeric hydrophilic bead.

2. A drug according to Claim 1, wherein the polymeric bead consists essentially of a single species of hydrophilic polymer.

3. A drug delivery system according to Claim 2, wherein the polymeric bead is selected from: a polysaccharide polymer, a synthetic polymer, and a protein.

4. A drug delivery system according to Claim 3, wherein the polysaccharide is selected from: alginates, chitosans, gellan gum, agarose, pectin and carrageenan.

5. A drug delivery system according to Claim 3, wherein the synthetic polymer is polyacrylic acid sodium salt

6. A drug delivery system according to Claim 3, wherein the protein is selected from gelatins, albumins and lactalbumins.

7. A drug delivery system according to any one of the preceding claims, wherein the poorly soluble drug is selected from: simvastatine, statines, risperidone, carvedilol, carbamazepine, oxcarbazepine, zaleplon, galantamine, anti Alzheimer, anti epileptic, anti parkinsonian, and other used for CNS indications.

8. A drug delivery system according to Claim 1, wherein the nanoparticles are in an amorphous, non crystalline state which enhances dissolution of the drug.

9. A drug delivery system according to Claim 1, further comprising a crosslinker.

10. A drug delivery system according to Claim 9, wherein the crosslinker is a multivalent cation.

11. A drug delivery system according to claim 10, wherein the multivalent cation is selected from: calcium, barium, iron, magnesium and copper.

12. A drug delivery system according to Claim 1, further comprising a disintegrate mixed with the beads.

13. A drug delivery system according to Claim 11 and 12, wherein the disintegrate is capable of breaking the crosslinking by replacing or chelation of the crosslinking multivalent cation.

14. A drug delivery system according to Claim 11 and 13, wherein the disintegrate is a calcium chelator.

15. A drug delivery system according to Claim 14, wherein the calcium chelator is selected from EDTA, sodium citrate and citric acid.

16. A drug delivery system according to Claim 14, wherein the disintegrant is selected from sodium dodecyl sulfate, and phosphate buffer saline.

17. A drug delivery system according to claim 1wherein the beads are formed without a cross linker.

18. A drug delivery system according to claim 1 wherein the beads are gelatin beads.

19. A drug delivery system according to any one of the preceding claims in a dosage form selected from: coated capsules, non-coated capsules, hard gelatin capsules, coated and non-coated tablets, suppositories, liquid suspensions for oral or parenteral administration and formulations for topical applications.

20. A drug delivery system according to Claim 19 in the form of coated hard gelatin capsules or coated tablets wherein the coating is selected from enteric coating, coating for colonic delivery and taste masking coating.

21. A drug delivery system comprising an active ingredient dispersed within a crosslinked polymeric bead wherein the crosslinking is by a cation selected from calcium, iron, magnesium and copper and wherein the drug delivery system further comprises as a disintegrant a chelator of calcium.

22. A drug delivery system according to Claim 21, wherein the active ingredient is a poorly soluble drug.

23. A drug delivery system according to Claim 21, wherein the active ingredient is a food additive.

24. A drug delivery system according to Claim 22, wherein the poorly soluble drug is in the form of nanoparticles.

25. A method for producing the drug delivery system of Claim 1, comprising:

(i) providing poorly water soluble drug dissolved in organic volatile solvent or mixture of organic volatile solvent with co-solvent that is either miscible or immiscible with water, optionally in the presence of at least one surfactant;

(ii) mixing the drug containing solvent with an aqueous phase comprising at least one surfactant and optionally co-solvent and other emulsification aids at such conditions in which an oil-in-water nanoemulsion or microemulsion is formed;

(iii) mixing the oil-in-water nanoemulsion or microemulsion with water-soluble bead forming polymers to produce a continuous phase of the emulsion which is capable of forming a bead;

(iv) providing conditions enabling bead formation from the continuous phase of (iii) containing nano- microemulsion droplets;

(v) optionally evaporating the volatile organic solvent and the water,

thereby obtaining dry beads containing in the polymeric bead dispersed nanoparticles of poorly water soluble drugs.

26. A method according to Claim 25, wherein the mixing of the poorly water soluble drug in an organic solvent occurs in the presence of at least one surfactant.

27. A method according to Claim 25, wherein the drug containing solvent is mixed within an aqueous phase containing a surfactant, the aqueous phase further containing a co-surfactant and/or co-solvent, and/or electrolytes.

28. A method according to Claim 25, wherein the volatile organic solvent is selected from: toluene, butyl acetate, ethyl acetate, methylene chloride, chloroform, limonene and their mixtures.

29. A method according to Claim 25, wherein the evaporation is carried out by application of air, vacuum, by a lyophilizing process, or by drying under normal room conditions.

30. A method according to Claim 25, wherein the nanoemulsion is prepared by homogenization by a high pressure homogenizer or by a phase inversion method.

31. A method according to Claim 25, wherein the microemulsion is formed spontaneously by proper selection of the surfactants, solvent, co-solvent and co-surfactants.

32. A method according to Claim 25, wherein at step (iv) the beads are incubated under suitable conditions and for suitable periods of time, with external crosslinking agents.

33. A method according to Claim 32, wherein the polymer is an anionic polymer and external crosslinkers are multivalent cations selected from calcium, magnesium, copper, iron, barium and salts of these cations.

34. A method according to Claim 32, wherein the polymer is a cation polymer and external crosslinkers are polyvalent anions selected from polyanions or sodium tripolyphosphate.

35. A method for producing a pharmaceutical composition comprising packing the beads obtained in Claim 25 within a capsule or tablet.

36. A method according to Claim 35, wherein disintegrator is added to the dry beads prior to packing the beads in a capsule or tablet.

37. A method according to Claim 36, wherein the disintegrator is selected from chelators and molecules capable of replacing the crosslinking ions.

38. A method according to Claim 37, wherein the disintegrants are selected from: sodium citrate, citric acid EDTA, sodium dodecyl sulphate, phosphate salts, and phosphate buffer saline.

39. A method according to claim 35 further comprising adding other polymers internally to the beads to improved permeability, disintegration or release properties and hence dissolution properties of the drug.

40. A method according to claim 35 further comprising adding other polymers and surfactants externally to the beads to improved permeability, disintegration or release properties and hence dissolution properties of the drug.